

WHAT IS CLAIMED IS:

1           1. A method of ascertaining and regulating  
2 shifts of reference position of an actuator-operated  
3 clutch in the power train of a motor vehicle wherein  
4 the shifts are caused by axial displacements of at least  
5 one of the input and output shafts of the clutch  
6 relative to the other shaft, comprising:

7           a first step of routinely ascertaining the refer-  
8 ence position of the clutch;

9           a second step of routinely memorizing and thus  
10 actualizing information pertaining to the ascertained  
11 reference position;

12          a third step of determining operational  
13 parameters which initiate shifts of reference position  
14 of the clutch; and

15          a fourth step of conforming said first and second  
16 steps to the shifted reference position when the deter-  
17 mined operational parameter exceeds a predetermined  
18 threshold value.

1           2. The method of claim 1, further comprising  
2 the step of continuing to memorize and actualize, in  
3 the course of and subsequent to said fourth step, that  
4 information which is obtained in said second step.

1           3. The method of claim 2, further comprising  
2 the steps of ascertaining and memorizing an emergency  
3 reference position while the determined operational pa-  
4 rameter is in the process of exceeding the predetermined  
5 threshold value, and regulating the actuator for the  
6 clutch as a function of the emergency reference posi-  
7 tion.

1           4. The method of claim 1 of ascertaining and  
2 regulating shifts of reference position of an actuator-  
3 operated clutch in the power train of a motor vehicle  
4 in which the output shaft of the clutch is the torque-  
5 transmitting input shaft of a change-speed transmission,  
6 wherein said third step includes determining the torque  
7 which is being transmitted by the output shaft of the  
8 clutch.

1           5. The method of claim 1, further comprising  
2 the step of establishing a hydraulic force transmitting  
3 path between the actuator and the clutch.

1           6. The method of claim 5, wherein said first  
2 step includes a snifting operation.

1           7. The method of claim 6, wherein said first  
2 and second steps are caried out at regular intervals  
3 as long as the operational parameter is below said pre-  
4 determined threshold value, and further comprising the  
5 step of carrying out at least one emergency snifting  
6 operation to thus ascertain an emergency engagement  
7 condition of the clutch when the operational parameter  
8 exceeds said predetermined threshold value.

1           8. The method of claim 7, wherein said third  
2 step includes determining the torque being transmitted  
3 by the output shaft of the clutch and further comprising  
4 the steps of (a) ascertaining and memorizing an emer-  
5 gency reference position while the determined  
6 operational parameter is in the process of exceeding  
7 said predetermined threshold value and (b) setting the  
8 engagement stage of the clutch to coincide with the me-  
9 morized emergency reference position when the torque  
10 decreases below the predetermined threshold value.

1           9. The method of claim 8, further comprising  
2 the steps of memorizing at least one torque being trans-  
3 mitted by the output shaft of the clutch while the de-  
4 termined operational parameter is below the  
5 predetermined threshold value, and reactivating the  
6 memorized at least one torque upon renewed drop of the  
7 torque below the predetermined threshold value.

1           10. An arrangement for regulating the shift of  
2 a reference position of an actuator-operated torque-  
3 transmitting clutch in the power train of a motor  
4 vehicle wherein the shift is caused by axial movements  
5 of at least one of an input shaft of the clutch and an  
6 output shaft of the clutch relative to the other there-  
7 of, comprising:

8           a connection between a mobile multiple-position  
9 force-transmitting operating member of the actuator and  
10 a displaceable clutch setting member;

11           a control unit for the actuator;

12           a plurality of signal-transmitting monitoring  
13 devices operatively connected with said control unit  
14 and including a sensor arranged to transmit to the  
15 control unit signals denoting the positions of said  
16 operating member;

17           means for ascertaining the force being  
18 transmitted by said operating member to displace said  
19 setting member; and

20           means for monitoring the torque being transmitted  
21 by said clutch, said control unit being arranged to rou-  
22 tinely ascertain the reference position of said clutch,  
23 to routinely memorize and to thus actualize information  
24 pertaining to the ascertained reference position, to  
25 determine operational parameters which initiate shifts

26 of reference position of the clutch, and to conform the  
27 reference position and the memorized information to the  
28 shifted reference position when the determined operati-  
29 onal parameter exceeds a predetermined threshold value.

1 11. The arrangement of claim 10, wherein the  
2 output shaft of said clutch is the input shaft of a  
3 change-speed transmission in the power train.

1 12. The arrangement of claim 10, wherein said  
2 connection comprises a hydraulic system between a mobile  
3 motor-operated member and a clutch-operating member of  
4 the actuator.

1 13. The arrangement of claim 12, wherein said  
2 mobile motor-operated member includes a reciprocable  
3 piston and said clutch-operating member includes a pi-  
4 votable member.

1           14. The arrangement of claim 13, wherein said  
2 hydraulic system further includes a master cylinder re-  
3 ciprocably receiving said piston and having a snifting  
4 orifice adjacent a path for said piston.

1           15. The arrangement of claim 14, wherein said  
2 motor is operable to move said piston relative to said  
3 orifice.

1           16. The arrangement of claim 15, wherein said  
2 motor includes a stepping motor.

1           17. The arrangement of claim 16, wherein said  
2 sensor includes means for transmitting to said control  
3 unit signals denoting the position of said motor-  
4 operated member relative to said orifice.

1           18. The arrangement of claim 10, wherein said  
2 clutch is a friction clutch and said power train further  
3 comprises an internal combustion engine having a rotary  
4 output member connected with said input shaft.

1           19. The arrangement of claim 10, wherein said  
2 control unit includes at least one memory for signals  
3 from said monitoring devices.

1           20. The arrangement of claim 19, wherein said  
2 at least one memory includes means for storing regularly  
3 transmitted signals generated by said monitoring devices  
4 and signals generated by at least one of said monitoring  
5 devices under special circumstances of operation of said  
6 clutch.